

The Maine Installer

Dedicated to Professionalism in Underground Tank Installation

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Special points of interest:

- 28 % of facilities studied did not have a valid inspection for 1999.
- 29% of inspections found problems.
- 39% of the problems found during inspections were not remedied.
- 29% of cathodically protected tanks tested failed cathodic protection tests

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Two Studies Recommend Evolution of Underground Tank Program

Last year, the Department of Environmental Protection (DEP) decided to take a look at how Maine's tank maintenance program was doing now that the vast majority of tanks have been replaced. This look took the form of two studies, both contracted to Marcel Moreau Associates. The first was a study of DEP's annual inspection requirement and was completed last July. The second involved a study of cathodically protected tanks, and that was just completed in January of this year. Both studies can be found in their entirety on the Bureau of Remediation and Waste Management's internet web page or can be requested by calling DEP. Instructions for accessing the Bureau's web page are presented on page 6 of the newsletter.

Annual Inspections

Present DEP rules require an annual check of the leak detection and spill prevention systems on underground fuel storage tanks. The inspection must be done by a Maine licensed underground storage tank installer or a person certified by the

manufacturer of the equipment, but the inspection report does not have to be submitted to the Department unless requested. The tank owner must have any malfunctioning equipment repaired within 30 days and must keep a record of annual inspections and repairs on file.

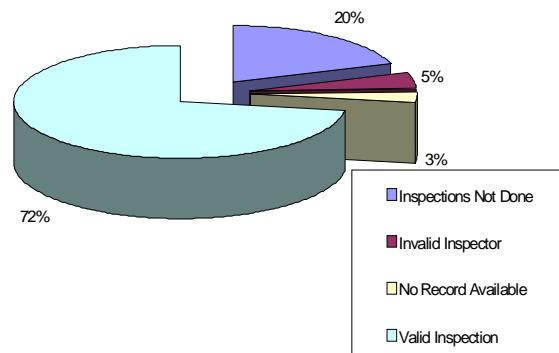
DEP's study hoped to answer the following questions.

- What percentage of UST systems are inspected annually?
- What percentage of UST annual inspections discover problems?

- Are problems discovered during annual inspections repaired?

Data on 262 randomly selected UST facilities (or about 9% of all facilities in Maine) were collected through file reviews and direct contact with the facility owners by mail and phone. We found 190 facilities or 72% of the sample had a valid inspection during 1999. Of the remainder, 20% did not do an inspection, 5% of the inspections were done by an unqualified person and 3% of the facilities claimed to have done the inspection but could not find the record when asked.

The facilities least
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Percentage of UST Facilities with Valid Annual Inspections Conducted in 1999.

Studies of Underground Tank Program (Continued)

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likely to comply with inspection requirements were single residences (44%). Other types of facilities with low rates of compliance were public facilities (53%) and multiple residences (57%). Facilities with the best rates of compliance were the State (86%) and municipalities, including schools (81%). Retail facilities were in the middle with 70% compliance.

Of the 190 inspections conducted, 55 or 29% detected one or more deficiencies, or 87 deficiencies in all. The most common problems, in order of frequency, were the overfill device, the spill bucket and the tank leak detection device. Forty-seven (61%) of the deficiencies not involving cathodic protection (10 cathodic protection deficiencies were deemed outside the scope of the study and were not tracked) were remedied, usually within 30 days. Thirty (39%) of the deficiencies were not corrected.

As a companion study, the DEP obtained and reviewed the 1999 inspection reports for 29 separate UST facilities belonging to a single owner. All were retail motor fuel outlets and all of the inspections were done by a single inspector.

These reports revealed that

31% had problems and that the most common problems were line leak detectors, spill buckets and overfill protection. By comparison, of the 70 retail facilities in the Moreau random sample analysis, only 19% had problems and the most common problems were line leak detectors, crash valves and overfill protection.

Review of the sheets from the single owner facilities also revealed clearly how annual inspections by a trained and careful inspector can allow detection and repair of small problems before they become big ones. At 29 facilities, one inspector discovered a total of 11 additional problems that were not covered by the DEP checklist. In some cases these problems would have resulted in damage to the tank or disabling of the leak detection system if not caught and corrected early.

Cathodic Protection

Some 1,812 cathodically protected tanks comprise about 31% of Maine's underground tank population. DEP began requiring annual monitoring of cathodic protection (CP) systems in 1985 and continues this requirement at present. While submittal of test results to the Department is encouraged, it is not

required. Therefore, the Department was not sure of how well CP systems were really functioning or how well they were being monitored.

The final study population consisted of 73 randomly selected facilities and 134 tanks at those sites. Insufficient information prevented the including cathodically protected piping in the study.

Researchers conducted monitoring by reading electric potential at both ends and in the middle on the centerline of CP tanks. While DEP rules only require one reading, in the middle and on the centerline, the researchers felt the more exhaustive approach was justified by current industry recommendation. However, they reported findings using both criteria.

While 78 tanks (or 58% of the 134 measured) met the study's criterion for functioning cathodic protection, 39 or 29% failed to meet either the study's criterion or the DEP's criterion using only a single measurement. Seventeen (13%) met the DEP single measurement criterion but did not show functioning CP across the whole length of the tank. If this estimate is extrapolated to Maine's entire CP tank population, 760 tanks may not

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Revised Underground Tanks Upgrade Registration Form (Short Form) Now Available.

DEP's licensing and enforcement unit for underground oil storage tanks has been working to improve the underground fuel storage upgrade form (short form) so that documentation for facility upgrades can be accomplished more efficiently and can be accurately recorded for the tank owner and the Department's tanks data management

unit.

The form inserted in the newsletter was reviewed by a number of installers. We are open to any comments on the composition or use of this facility upgrade form. The principle reason behind the use of this form is to document the work done at registered facilities as accurately as possible and to limit data

errors for registered tanks throughout the state.

Please feel free to copy this form as you need it or contact John Dunlap (207/287-3547). We anticipate making the form available on DEP's Bureau of Remediation and Waste Management internet site in the very near future.

Please use the long form for

Studies of Underground Tank Program (Continued)

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be adequately protected against corrosion.

The study attempted to correlate a variety of tank variables with the observed effectiveness of CP systems. Drummond tanks appeared to show a greater propensity to fail CP monitoring than other tank brands. Tanks over 6000 gallons in size also tended to fail more than smaller tanks. At this time, tank age does not seem to be a factor in CP system failure, but none of the tanks measured have reached their design life of 30 years. The data hint at the possibility that the installer may have a significant influence on the long term performance of the CP system, but the data are too sparse to draw any firm conclusions. Only four installers had sufficient numbers of installations (at least five installations each) for comparing pass/fail rates.

Forty-two of the failing tanks were tested for electrical continuity problems. Continuity between tanks and other structures was found in 13 cases (31%), suggesting that electrical connection be-

tween the tank and other structures is a significant cause of CP failure but does not totally explain problems.

One unfortunate finding was that the monitoring results obtained by the researchers differed from the results obtained from installer monitoring efforts. Study results were compared to results obtained previously from installer monitoring of 103 tanks. For that population, the installers passed 94 tanks (91%) while researchers passed only 73 (71%). The researchers concluded:

"This finding tends to corroborate anecdotal reports of installers placing the reference cell in every possible location until a 'passing' reading is obtained. It was also observed in this study that a number of facilities have unlabeled wires that often give 'passing' readings, though in many cases these wires are not connected to the tank shell. Again, anecdotal evidence

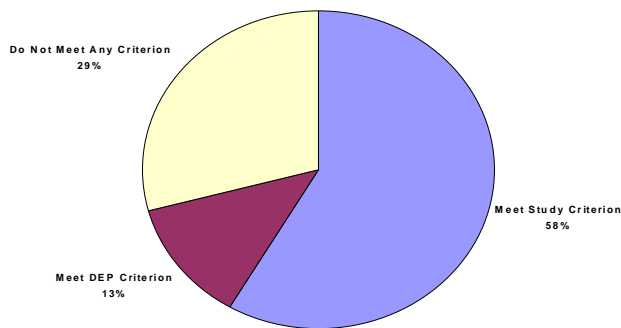
points to installers using these wires as test wires without verifying that the wires are actually connected to the tank. It is clear that the CP test procedures practiced by certified installers need improvement."

Finally, researchers compared facility owners' recordkeeping of cathodic protection test results. Only 15 (21%) of the 73 facilities studied were able to produce the three (3) years of test results required to be maintained at the site. Some of the other facilities were able to produce two years of test results (24 facilities, 33%), or one year of test results (14 facilities, 19%).

Proposed Changes to the Underground Tank and Installer Certification Programs

During the current session of the Maine Legislature, the DEP will introduce a bill to prevent oil discharges through improved tank inspection and maintenance procedures. The bill would prohibit delivery of oil to tanks that do not meet annual inspection requirements including cathodic protection. The inspector would submit a certificate of inspection for the facility to DEP if the facility passes the annual inspection. The DEP would then issue a certificate or tag to the facility. The certificate or tag would have to be visible to the delivery driver before the facility could be supplied with oil.

The bill also would establish a program to expand the pool of qualified persons who can inspect



Percentage of Tanks meeting a criterion for CP

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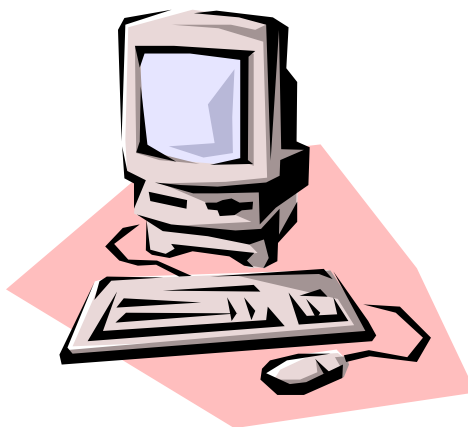
BUSTI On the Net (And Other Interesting Links)

These days everyone has to be on the Internet and we're no exception. The whole address is <http://janus.state.me.us/dep/rwm/transpinstall.htm>. Once you're there, there's a list of everybody who's certified, all our forms for download, a list of training opportunities available, a brief description of our program, past annual reports, past newsletters, and more. If typing the whole address from scratch is too tough, try this:

1. Go to the State of Maine Home Page (www.state.me.us), select government agencies, and select Department of Environmental Protection (state.me.us/dep/);
2. Select Bureau of Remediation and Waste Management; and
3. Find and select Regulatory Programs: Transporters and Tank Installers.

But there's even more. There's now a way to find out if there are any public water supplies close to where you are installing, removing, or repairing that tank or pipe. There's no more guessing and hoping

you're correct when filling in information on the tank registration form. The Maine Office of Geographic Information Systems along with the Department of Human Services placed an Atlas of public drinking wa-



ter supplies on line. You'll start off with a map of the state, but you can zoom in closer or zoom out as you desire. You can search by town or you can find a particular supply. You can read all the vital statistics about particular supplies. The site which links you to all this information is the Maine Office of Geographic Information Systems (<http://>

apollo.ogis.state.me.us/mapping/mapframe.htm.)

Once again, there's another way if you don't want to type all that in:

1. Go to the State of Maine Home Page (www.state.me.us), select government agencies, and select Geographic Information Systems, Office Of ; and
2. Select "Internet Mapping:)

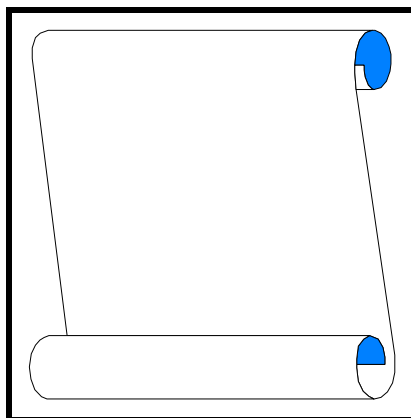
We're not done yet. Another page on DEP's Bureau of Remediation and Waste Management web site (janus.state.me.us/dep/rwm/database.htm) will allow you access to the State's underground tank database information. You can either download a report listing all the facilities or download tables that you can insert in databases of your own (you will need to be able to set up a relational database to use the tables). Use the first set of instructions in this article, but when you get to item (3), select "Educational and Informational Resources; Databases and Database Reports."

Studies of Underground Tank Program (Concluded)

(Continued from page 5)

an underground storage tank. The DEP's current procedures for certifying cathodic protection testers and identifying qualified tank inspectors would be replaced by a more rigorous and enforceable program maintained by the Board of Underground Storage Tank Installers.

Finally, the bill would change



the law governing the Board of Underground Oil Tank Installers to eliminate the requirement that one of the seats on the 7-member board be reserved for a representative from the Oil and Solid Fuel Board, the Plumbers Examining Board or the State Board of Certification for Geologists and Soil Scientists. This restriction has made the seat difficult to fill.

Housekeeping at DEP

Ever find that some paper work was missed in the rush of the summer season? A few loose ends that were left? Here at DEP, every winter we check our records for these loose ends. What do we find? Removal Notices more than 6 months old with no confirmation the tank was removed. Tanks that were removed months ago but no site assessment report has been received. Tanks that are planned for installation but no confirmation of installation from the installer.

To tidy things up, each year we send out various letters. First we contact owners of tanks that have been planned for removal for more than 6 months. This letter asks for confirmation that the

tanks have been removed. If none is received within a few weeks, the tank status reverts to active. So, let's say a tank owner wants you to remove a tank this spring. They sent in a removal notice to us last summer. Do you need to send us another notice? **YES.**

The second housekeeping letter goes to owners of tanks that have been removed but no site assessment has been received. The letter requests a copy of the site assessment done when the tank was removed, and states that if no site assessment was done when the tank was removed, an after-the-fact site assessment must be done. Until a site assessment is done the removal is not complete and the Department will continue to bill

the tank owner for annual registration fees for the removed tanks.

Tank registration staff also follow up with tank owners and installers to determine the proper status of tanks listed as planned for installation. In some cases the tanks have been installed and the installer needs a reminder to complete the Certification of Proper Installation. In other cases the project has been put off until next year. A few have been cancelled.

All of this housekeeping means your telephones may ring in February and March. Tank owners will need your help in completing paperwork such as site assessments, removal notice cards and Certificates of Proper Installation.

A Quick Primer on Ball Float Valves

Several installers have asked whether ball float valves are acceptable overfill protection where suction pump systems are used. The quick answer is—NO. In the vast majority of cases where they are found, they need to be replaced with electronic or flapper valve protections.

For wholesale or retail tanks, motor fuel tanks (including generator tanks) ball floats with suction pump systems must be replaced with electronic or flapper over fill protection. The same applies to consumption on premises heating oil

tanks installed after Sept. 16, 1991 and larger than 1100g.

For smaller or older tanks, storing oil consumed on the premises, Oil and Solid Fuel Board regulations require a vent alarm.

Other important points to remember are:

- Ball floats should never be used where tight fill, pump-off deliveries may occur. Overfilling may split the tank, and therefore ball float valves should be replaced with other forms of overfill

protection;

- Loose fill, pump off deliveries are not allowed except at tanks using electronic overfill protection systems;
- There are different models of flappers available depending on whether a tank receives pump off or direct drop deliveries. Be sure to install the model appropriate to the type of delivery to avoid damage to the tank; and
- Heating oil tanks that are also used to store fuel for a generator are considered motor fuel tanks.

Training Opportunities

The following program sponsors recently received accreditation or renewal of their training opportunities for tank installers:

- The **American Petroleum Institute** received renewal accreditation for two video training programs entitled "Operation Underground." These programs involve video tapes and companion workbooks with proctored examinations at the end of each program. "Installation" received three (3) hours credit and "Removal" received two (2) hours credit. Contact Valeen Young, American Petroleum Institute, telephone (202) 682-8220 or email

youngv@api.org.

- **Burgess and Associates** received renewal credit of eight (8) credit hours for their 40 hour safety course and two (2) credit hours for their one day refresher. Contact Ralph Butcher, telephone (207) 257-2723.
- **Environ Products** received two (2) hours credit for their contractor training program, in which they supervise and instruct during an actual installation of Environ flexible piping. Contact Marc Avallone, Environ Products, Inc., Telephone (610) 518-2891, email mavallone@envproduct.com.
- **OPW/Pisces** received two (2) hours

credit for their contractor training program, in which they supervise and instruct during an actual installation of Pisces flexible piping. Contact David Gillispie, OPW Fueling Components, Telephone (631) 765-1759, email dgillispie@opw-fc.com.

- **Safety Communications** received renewal credit of eight (8) credit hours for their 40 hour safety course and two (2) credit hours for their one day refresher. Contact John Hotelling, Safety Communications Corp; Telephone (207) 325-4072 or 764-6486., email john@SafetyCommunications.com.

Vent Whistles as Overfill Protection

We recently received this interesting question regarding our underground tank standards?

Can Vent whistles be used for overfill protection?

In true State government fashion, we want to give you a clear, unambiguous, and understandable answer. So, here it is –

→ It depends. ←

Unfortunately, once again, clear, unambiguous, and understandable answers are hard to come by. But maybe with some background things will become clearer.

Maine's regulations define requirements for overfill prevention for marketing and distribution facilities in 06-096 CMR c. 691 §5.B(3) and on-site consumption facilities in §6.B(3). Both sections provide a number of options for overfill prevention, but in both cases, one of the options is "... equipment that will automatically .. alert the transfer operator when the tank is no more than 90 percent full by ... triggering a high level audible alarm."

The question of what constitutes an

audible alarm seemed easy until we got to this issue. Our first thought was that an audible alarm was something that one began to hear when there was a problem. But a vent whistle doesn't work that way. It sounds off normally when a tank is being filled, but goes silent when the tank is full. Intuitively, an alarm that comes on when there is a problem seems much easier to detect than one that shuts off when there is a problem. Therefore, we need to ensure the audible alarm is, in fact, audible to the delivery driver as he/she is filling the tank.

The other issue is that the regulations for retail and motor fuel tanks are in a different section of the rules than the regulations for on-site consumptive tanks. While this doesn't seem to make much of a difference, it in fact does. Maine's retail and motor fuel tank regulations are subject to regular review and approval from the U.S. Environmental Protection Agency who allows the Maine DEP to assume responsibility for the Federal underground tanks program in Maine.

In order to get EPA approval, Maine DEP's retail and motor fuel tank regulations and interpretations of those regulations have to be no less stringent than the Federal regulations. We therefore would need EPA to weigh in on this issue

before we advised folks on using vent whistles on retail or motor fuel storage tanks.

In the meantime, though, we feel vent whistles can serve as cost-effective overfill protection in the selected instances where we can be certain the vent whistle really is audible. So, our answer to the question of whether vent whistles can be used for overfill protection is:

Yes, with the following limitations:

1. They may not be used on tanks used for marketing and distribution or for the storage of motor fuel. For gasoline tanks especially, the vent opening is located too far from the fill for the driver to hear it, especially in noisy locations;
2. They may only be used for tanks where tight fill, pump off deliveries are used. No drop deliveries, no loose fill deliveries;
3. The vent opening must be located adjacent to the fill (within 8 feet); and
4. The vent whistle must be installed so as to alarm (stop whistling) when the tank is 90% full. It must also be installed so as to allow annual inspection for proper operation.